AUTOMATED UNDERWRITING : COLLATERAL ASSESSMENT ALTERNATIVES

By:

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Overview

The mortgage banking industry has seen changes at a phenomenal rate in the areas of product alternatives, securitization, marketing, and process reengineering. Even though technology is widely talked about within the industry, its adoption has come about at a slow pace compared to similar applications. Credit scoring models have been around for decades but have seen real success only in recent years. The industry is now realizing that the collateral side of the mortgage process is in need of a change.

The traditional valuation process has seen little change in the past 30 years. New forms have been introduced and more due diligence required to support the appraisal reports but the underlying process, review and application has not changed. The introduction of the Automated Valuation Model (AVM) and other appraisal alternatives like the desktop valuation, and BPO in recent years have proven themselves as viable alternatives in the collateral valuation arsenal. Several factors have contributed to this acceptance:

- Improved speed and cost of computer systems.
- Increased competition for loans is driving down cost.
- Credit scoring has contributed objectivity to credit process, while collateral remains laden with subjectivity.
- Consolidations and mergers are driving system integration streamlining.
- Confidence in the traditional appraisal has weakened.

AVMs are initiating an overhaul to the collateral assessment processes within the mortgage banking industry. The soundness of traditional procedures is being questioned as these new systems reveal the weaknesses of the past and benefits for the future. These benefits include:

- Reduced costs and increased speed for valuation services.
- Improved consistent audit procedures.
- Ability to manage valuation options on a per loan basis.
- True risk management with measurable results.
- More objective loan review process.
- Improved default rates.

Technology including AVMs will play an increasingly important role in the mortgage lending process as the benefits become more apparent and additional applications are discovered.

Today, the main focus of Collateral Automation systems is concentrated on the residential side of the lending arena. Work is underway to automate non-residential valuations and models are expected to be introduced as data and demand improve.

The following data and information is inherent to residential AVMs.

AVM Types and Definitions

Hedonic models

Models that are dependent on characteristic data about the subject property as well as the comparable properties. The fields of importance include living area, bedrooms, baths, lot size, age and use to name a few. These models also rely on sales prices and dates of sale. These models are property specific and dependent on finding the subject properties location. Geocoding becomes an important part of the underlying database structure.

Index models

These models are also called repeat sales models because they are developed by creating indices based on properties which have sold and then resold over time. This change in price over time and the number of properties or observations within a given geographic area is critical to the model's accuracy. These models do not need physical characteristics only sales prices and dates for properties within the database. These models are price specific, they do not need to identify the subject's exact location.

Hit rate or valuation rate

This relates to the percentage of valuations that can be achieved by a model within a given geographic market, usually at the county level. Example: out of 100 properties randomly selected within a county, how many values were rendered. This assumes all 100 properties are found within the database.

Discriminatory

A discriminatory model has a process by which it will abort giving a value on a property if the model does not feel it has adequate data or finds unexplained anomalies within the data preventing an adequate analysis. Closely associated with hit rate and accuracy.

Non- discriminatory

A model that is non-discriminatory will basically render a value almost every time it can identify a subject property within the database.

Justification

A model that identifies supporting data used to achieve the value estimate. ACTUAL data used to determine value must have had a 50% or greater weighted contribution to the final value estimate. IMPLIED data that supports the valuation but might not have actually been used to predict the value or had a minor influence (less than 50%) in the determination. This gives the user the ability to review the data used to produce the value.

Unjustified

Model does not provide any data to justify or support the value estimate.

Mode

This relates to the degree of user interface with the model. An AUTOMATIC mode model allows for limited options and influence by the user. A MANUAL mode will allow the user the ability to change the model through options or data alterations. Manual mode changes can cause significant change to the final value estimate rendered by the model and will not estimate value with a confidence factor.

Property specific

A model that is property specific has to identify the subject property and its location within the database. These models typically need hedonic data.

Price specific

A price specific model does not need to identify the subject property within a database, they simply rely on the subject's previous sale price and corresponding date or a prior appraised value and corresponding date. These models work within a broader geographic spectrum and make many more assumptions including that the subject property's prior value was actual market value, that no significant changes have occurred since that time internally or externally to affect value and that property is/was typical for the neighborhood. This usually means their hit rate and geographic coverage is greater.

Geographic coverage area

Geographic areas in which a model will operate. Typically measured at the county or state level. Closely related to hit rate. A model can claim broad geographic coverage but only hit 5 % of the time.

Multiple methodology

A model that uses more than a single methodology to determine a value estimate. This can be driven by accuracy desires and/or hit rate goals caused by data weaknesses.

BPO's

Broker Price Opinions are valuations conducted by real estate salespeople on an appraisal type form with comparables, inspection and analysis. Currently ten states have restrictions on the use of BPOs.

Desktop valuations

Valuations consisting of a manual comparable search and desktop analysis only. Basically, a carbon unit AVM. Very effective in areas were data interpretation is beyond the abilities of the AVMs.

Forms 2055, 2065

These are new appraisal drive-by forms that might be requested with or without an interior inspection.

Forms 2075, 2070

New inspection only forms designed by Freddie Mac and Fannie Mae to complement their AVMs in Desktop Underwriter and Loan Prospector.

These two agencies introduced AVMs into their automated underwriting systems in April 98. The models value the property and indicate to the lender what type of inspection and/or appraisal needs to be done. They are hoping that the AVM will work on 60% of the mortgage volume through these systems within the near future.

Alternative Valuation Products

The introduction of alternative valuation methods has not been isolated to AVM's. Desktop valuations and other hybrids using technology are available in the marketplace and useful in creating an overall solution for an institution attempting to improve their collateral assessment procedures.

Desktop valuations are property values that are determined from a desk with no inspection of the property being made. The data is acquired in various ways including subscription to public record and MLS data sources, which are then reviewed by a human reviewer and might or might not have used a computer algorithm to help determine the value. Some of these products rely on real estate professionals in the field to provide the data on a case by case basis.

The value of these products is their ability to provide values quickly in areas that AVMs either cannot work at all or minimally. They fill the gap between traditional appraisal products and total automation. The largest advantage being the fact that a person reviews the report to insure appropriateness and credibility.

These reports have come under attack from the appraisal community for lacking accuracy, mainly because no field examination or property inspection is completed. These products have their appropriate place and should be balanced like all collateral assessment procedures with the degree of risk of the mortgage transaction.

AVM Testing and Quality Control

All the models available today are accurate within a 5-18 % variance of a property's known value. Models are typically tested against properties with recently known sales believed to be market value transactions. This produces two test scores.

Specific Accuracy is the average variance or absolute mean error from known sales prices of each property within the sample. This value indicates how accurate the model is on each property within the sample. Typically this will fall within the 5-18% range. This means that on average the values rendered by the model are within the percentage indicated by that model.

Aggregate accuracy relates to the model's error rate of the total samples value and its variance. Example: total sample worth $5,000,000 and model produces total values equaling $4,900,000. This rate is typically within the -.5 to - 4% range. This is a negative number, which means that the models are typically slightly less than the known values. This is to be expected since the models are all reliant upon historical data that trails market trends.

Testing and analysis has shown that manually completed appraisals are also within a similar accuracy curve as the models. This is not surprising since the subjectivity in residential market transactions is impossible to measure and that the range of market value for any one property is also a similar range.

Models using index methodologies or multiple methodologies to achieve broader geographic coverage typically have wider accuracy ranges because of data problems that cause the models to make more assumptions concerning market conditions.

Each institution has to review their geographic needs and perform tests on those models within those areas to assess compatibility. Also, request test data from modelers to compare with internal tests for continuity. Test policies and procedures must be created both initially and on a continuous basis to insure product stability and reliability. This will also help to satisfy regulatory issues and concerns.

AVM Application and Deployment

The following table indicates the collateral assessment application, the traditional appraisal requested, the AVM use along with comments.

Application	Traditional	AVM	Comments
Pre qualification	Manual Comp search	AVM	AVM faster than manual search to compare to owners estimate of value
1st Mortgage (Purchase)	1004, 2055, 2065 Appraisals	AVM w/inspection And/or analysis of output by appraiser	Depending on LTV. Hybrid AVM with some appraiser involvement. Need to set policy on AVM variance from sales price accepted.
1st Mortgage (refi)	1004, 2055, 2065 Appraisals	AVM w/ inspection and/or analysis or AVM appraisal	Depending on LTV and cash out basis determines degree of appraiser involvement. Need to create policy matrix.
2nd Mortgage HELOC	2055,2065 Appraisals, BPO's	AVM w/or w/out inspection	Depending on total LTV and loan amount.
2nd Mortgage –125%	BPO's Desktop valuations Assessed values	AVM	AVM provides better consistency of valuations if known accuracy rates. Use traditional when no hit available.
QC/Appraisal Review	Review Appraisals Desktop or Field	AVM w/or w/out appraiser involvement	Much higher percentage can be reviewed with AVM. Only an appraiser reviews those outside policy guidelines.
Loss Mitigation	Appraisal Reviews BPO's 2065,2055	AVM w/ inspection	AVM improves speed and efficiency. Inspections by broker and appraiser can concentrate on conditional variances in value.
Portfolio Analysis	Appraisal reviews BPO's	AVM	Very small % typically reviewed. AVM allows for broader coverage at less cost and faster.

AVM's can currently be used on over 50% of the mortgage flows. This is expected to rise with improved data quality to 70-80% over the next few years.

Acceptance, Law & Regulation

Banking Regulators

Federal regulators monitor and audit the banking industry, most institutions fall under either the Office of the Comptroller (OCC), Office of Thrift Supervision (OTS), Federal Reserve or the Federal deposit Insurance Corporation (FDIC). These federal regulatory agencies audit loans by institutions, which include the appraisals and evaluations, performed for those loans as well as the institution's collateral assessment policies and procedures. These agencies have the challenge to come up with audit criteria when institutions use models. No official announcements or policies have been expressed, but the regulators are being introduced to AVM's through various training programs.

Appraisal Regulators

The S &L bailout bill passed by Congress created FIRREA establishing the Appraisal Subcommittee. The Appraisal Subcommittee was charged with supervising the Appraisal Foundation and overseeing the implementation of appraisal licensing by the states. The Appraisal Foundation oversees the Appraisal Standards Board (ASB) and the Appraisal Qualifications Board (AQB). These groups set the minimum standards for appraisal practice and qualifications that the states must follow at a minimum.

The ASB has dealt with the AVM issue in the form of an Advisory Opinion. This Advisory Opinion spells out the use of AVM's by appraisers and allows them the latitude to provide valuations with AVM's as a tool integrated into their professional practice.

Many of the states have created their own interpretations of USPAP and the basic definition of an appraisal that is starting to cause frustration and confusion within the industry. Even though the ASB states that AVM's are not in themselves an appraisal, many states disagree based on their definition of an appraisal. The states are observing the AVM situation with caution.

Secondary Market/ Wall Street

Fannie Mae and Freddie Mac control the secondary market, since they purchase a large percentage of the residential loans. Both of these agencies have recently announced the use of AVM's within Desktop Underwriter and Loan Prospector. New forms (2075, 2070) have been issued which are inspection only forms. These forms are used in conjunction with the AVM's in the above mentioned automated underwriting systems. These systems run the AVM's and determine the extent of the appraisal-related service that needs to be performed. Neither agency has made any announcements about accepting AVM's in loan packages submitted to them outside of their underwriting systems. Both are using AVM's in other areas such as Loss Mitigation and Quality Control.

The wall street rating agencies have been using repeat sales indices for years in the analysis of portfolios. They are now getting pressure from lenders who wish to use AVM's in loan origination for subprime and other loan types secured by Wall Street. Currently AVM's are being reviewed to determine the policies and criteria for acceptance into the loan process. They are considering proposals from institutions on an individual basis for the implementation of AVM's into the loan origination process.

AVM CLASSIFICATION SYSTEM

One of the major issues with AVM's is trying to compare one AVM with another. The need for standardized methods for comparing accuracy and performance will help insure a better understanding of each models abilities and expectations. The following classification system has been introduced that would allow the industry to create guidelines and policies around performance levels instead of trying to formulate them with individual products. Each AVM would be classified to its level of performance allowing the industry to relate to that model easier. This would also allow for the industry to create levels needed for certain applications. This creates targets for the model developers to address instead of everyone's individual definition of a good model.

Classification	Specific Accuracy	Valuation Rate	Aggregate Accuracy	Coverage Area	Justification
Level I	Up to 7% 80% w/10%	min of 40% W/o user	Up to .6%	Min of 40%	Actual 100%
Level II	Up to 10% 70% w/10%	Min of 50% W/o user	Up to 1.1%	Min of 50%	Implied 100% or Actual greater than 50%
Level III	Up to 13% 60% w/10%	Min of 70% W/user	Up to 2.1%	Min of 60%	Implied 50%minimum
Level IV	Up to 16% 50% w/10%	Min of 80% W/user	Up to 3.1%	Min of 70%	None

Specific Accuracy = model valuations are measured against known sales prices and indicated as an average variance (absolute mean error). Percentage of total properties valued must be within 10% or less variance.

Valuation Rate (hit rate) = percentage of properties which are valued against successful attempts. Levels I and II are without user input. Levels III and IV are with a minimum of user inputted data.

Aggregate Accuracy = total portfolio accuracy measured against known sales prices.

Coverage Area = measured against mortgage flows on a county basis nationwide. Minimum Valuation Rate per county is 20%. Counties are weighted using industry available data on mortgage flows.

Justification = data supporting valuation which is the ACTUAL data used to determine value, minimum 50% weighted contribution, or IMPLIED data that supports the valuation but might not have actually been used to predict the value or had a minor influence (less than 50%) in that determination. Additional percentage indicates number of properties applied to in total sample. Example, Level II, must provide Implied support to all valuations or Actual support to a minimum of 50% of properties.

Testing Criteria:

Single family residential properties that include single family residence, condo, pud and coop. No 2-4 family.

Must test semi-annually.

Testing must be minimum at the county level.

Must test against known Sales prices within 6 months of test valuation date.

Modeler is responsible for using the best data available in each geographic area.

Test a minimum of 100 properties per county or 1% of past six months residential sales in said county, whichever is greater.

County must have minimum 100 sales in past six months to be considered.

Individual Report Output Criteria:

Each report must have the following minimum criteria:

Property Identification: address and one of the following, either, owners name, APN, or legal description
Valuation date: date property valued as of
Report date: date report run.
Data source used:
Model name and version number:

Test report criteria.

Semi-annual test reports must contain the following minimum:

State
County
Date valued
Sample size per county
Number of properties tested per county
Data for each criteria indicated above.

Each model developer could be asked to test their product and submit the results for verification or an annual test could be conducted with a control data set selected by a party made up of industry leaders responsible for relying on the results of the models. This group could include rating agencies, mortgage insurers, and large investment firms in the secondary market.

Data

The underlying data used by all AVM's is as important as the model itself. Public records data acquired by data providers from county assessors are the main source of data to feed AVM's. The quality of this data varies greatly from one county to the next. The major data collection companies are:

First American RES
Dataquick
IDM Corp.

Most data providers are members of the Real Estate Information Providers Association (REIPA). This association has a list of members located at www.reipa.com.

MLS data is considered by some to be the best data to determine market trends within an area and measure sudden changes within a marketplace. Unfortunately MLS data is as fragmented as county data. MLS data also lacks standardization, which is crucially important to AVM's. REALQUEST is a software company that has developed a method of standardizing multiple databases and they are in the process of mapping many MLS's. Their software is being used by some to provide data for AVM's especially in areas were data is otherwise not available.

Hedonic models need characteristic data that is only available from the public sector in approximately 500 counties. This number has improved greatly in the past year but is likely to slow down as most of the counties with easily correctable data are being exhausted. This number is likely to increase at a much slower pace in the future.

County governments are realizing the value of their data and starting to take steps to improve its content and accuracy. A few counties are starting to attach a digital photo of each parcel to their databases. This gives an indication of the databases of tomorrow.

The AVM's currently available are very dependent on traditional real estate data. This will change as the discovery of related data that is available is used to improve the model's ability to predict values and market trends. The modelers are still thinking in a traditional sense and have not yet explored possibilities outside the box of typical appraisal processes and procedures.

The introduction of new data collection methods will also help to initiate the evolution of model development. These new methods will change the way data is compiled, analyzed, sorted, and merged with other real estate related information. Currently the data is only looked at in a one-dimensional environment. This environment is tied to traditional processes and procedures. The linkage of econometric and demographic data to real estate data along with the influence of related geographic credit information will create the next generation of valuation models.

Institutional Implementation

There are two areas of implementation within a lending institution, which include technical and business.

If an institution wishes to integrate an AVM into their automated systems the following issues must be addressed:

- Disparate platforms
- Legacy systems needing updating.
- Communication protocols
- Data- (CD, on-line, Server, HDD)
- Networkability
- Automated Underwriting systems

The integration of more than one AVM becomes an even more complex problem involving the merging of potentially different systems and protocols.

Issues facing the business side of the AVM decision include the following:

- Current collateral assessment guidelines and policies.
- Examination of loan types and appraisal requirements.
- Geographic business coverage compared to AVM coverage
- Create or hire an AVM guru to oversee policies and underwriting procedures.
- Corporate policy must be compared with field procedures.
- Resources review to help decide on internal or external outsource options.
- Create AVM application matrix that meets risk and investor criteria.

The implementation of AVM's can be a difficult task since it extends the available options for collateral assessment to create more acute processes that ensure the appropriate collateral value for each property and potentially more options which means more choices and decisions. This increase in the number of options and decisions initially slows the adoption process. As the models become more integrated and their value understood, the industry will embrace valuation models as they have credit models.

One Step Beyond

New challenges are facing the mortgage banking industry at an alarming rate. 125% LTV loans were unheard of a few years ago. Now, the introduction of Risk Based Pricing into the mortgage sector is on the horizon. These concepts and ideas will constantly be expanding and pushing the evolution envelop of the loan process at a faster and faster pace.

Risk Based Pricing offers more loan options for the consumer and the lender with the availability to adjust rate, term and risk more acutely than ever before. The prospect of Collateral Risk Based Pricing increases the options exponentially. It is based on the concept that market value is not an absolute number, but a range. It is easier and more objective to factually estimate a properties value range within a market than an exact number within that range. A predominant value would still be estimated within the range based on the property's condition and amenities, but the value range would allow the lender the latitude to loan within that range according to the risk level. This allows the consumer and the lender the latitude to satisfy the loan request within guidelines and policies that can be audited. Today, lenders simply find a collateral assessment that meets their needs and no one knows were that value falls within the range of *risk.*

The industry will become more and more dependent on technology as time goes on. The credit score and AVM are only the beginning of the technological insurgence over the next decade.

AVM National Coverage

COMPANY NAME	AVM	Geo Coverage	METHODOLOGY
Acxiom/DataQuick	HVE	90% of all Cntys	Hedonic & Index models
www.dataquick.com	FreddieMac	in 50 states	Property specific Compares both & gives best estimate
CSW	CASA	400 counties	Multiple methodology including Hedonic, Index
www.cswcasa.com		in 42 states	Property specific Discriminatory & Unjustified
First American RES www.eappraiseit.com www.resvalueweb.com	Valuepoint	317 cnties	Desktop program, Hedonic model Property specific Discriminatory & Justified
	HPI	500 cnties	Index model Price specific Unjustified
Landsafe www.landsafe.com	ValueFinder	816 cnties	Index model Property specific Justified
Lender's Service, Inc.	PV	192 cnties in 26 states	Multiple methology including Hedonic
www.lendersservice.com			Property specific Discriminatory & Justified
MRAC www.mortgagerisk.com	HPA	46 states 1300 counties	Index model Price specific Unjustified
PSAR www.psar.com	winPSAR	29 states 324 counties	Hedonic model Multiple Regression & Market Comps Analysis Property specific Justified & Discriminatory
Solimar.net	PASS	550 cnties in 44 states	Multiple methology including Hedonic, Index & Neural
www.solimar.net			Property specific Unjustified & Discriminatory
Activesoft Technologies	Hal	270 cnties	Hedonic model with two additional models on same system
www.activesoft.com			

TransUnion Equity Services www.residata.com	Value-On-Line	200 cnties	Hedonic model Property specific Justified & Discriminatory
	HVE FreddieMac	90% of all Cntys in 50 states	Hedonic & Index models Property specific Compares both & gives best estimate
Real-Info www.real-info.com	Q-Val	NY,AZ	Hedonic Property specific Justified
Banton Research www.banton.com	ValueWizard	NC,AL,FL	Hedonic Property Specific Justified
E-ppraisal.com www.e-ppraisal.com	E-ppraisalPro	CA	Hedonic, appraiser supported Property specific Justified

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